

<p>WABER PATENT IN SUIT No. 1,808,091 (R. 352)</p> <p>SPECIFICATIONS DISCUSSED IN OPINION (R. 465)</p>	<p>WABER PATENT IN SUIT No. 1,808,091 (R. 352)</p> <p>CLAIM 2</p>
A feature of my invention is the provision of a tube structure having	The method of making an inner tube for pneumatic tires which consists in
(1) an inner layer of elastic material which is formed of a predetermined size ¹	(1) forming an endless tube of vulcanizable rubber whose dimensions are slightly smaller than the cavity in the tire casing in which said tube is intended to be used,
(2)a (described in specifications) ² (2)b which inner layer then has applied to the outer circumference thereof a layer of mastic puncture sealing material,	(2)a expanding said tube by internal pressure, ³ (2)b applying to the outer circumference of said tube while inflated a layer of plastic sealing compound,
(3) and an outer layer of elastic material	(3) covering the said compound with a layer of vulcanizable rubber which extends beyond the edges of the compound and contacts with the endless tube for adhesion thereto,
(4) which structure is then cured in a mold of substantially the same size and shape as the inner contour of the casing which receives the tube.	(4) and curing the entire tube structure in a mold whose cavity is substantially equal to the size and shape of the cavity of the tire casing in which said tube is intended to be used
FOOTNOTES	
¹ the basic tube portion * * * is first formed as an annular, endless tube of a size slightly smaller than the inner cavity of the casing with which it is to be used (R. 355, col. 1, lines 15-19).	² to the point where it is fully expanded but under substantially no tension. In other words, it is inflated to about the size it will have when it is placed in use (R. 355, col. 1, lines 21-25).
² the basic tube * * * is inflated to the point where it is fully expanded but under substantially no tension. In other words, it is inflated to about the size it will have when it is placed in use (R. 355, col. 1, lines 21-25).	

Note. In this comparison of the prior art disclosures with the process claim in suit, the elements or portions of said prior art disclosures, represent unsatisfactory features found in the prior art patents, which the Waber disclosure or

<p>WABER PATENT IN SUIT No. 1,808,091 (R. 352)</p> <p>CLAIM 2</p>	<p>WALLACE PATENT No. 1,258,506 (R. 392)</p> <p>DISCLOSURE</p>
The method of making an inner tube for pneumatic tires which consists in	The method of making an inner tube for pneumatic tires which consists in
(1) forming an endless tube of vulcanizable rubber whose dimensions are slightly smaller than the cavity in the tire casing in which said tube is intended to be used,	(1) forming an endless tube of vulcanizable rubber whose dimensions are slightly smaller than (about two-thirds the size of) ⁴ the cavity in the tire casing in which said tube is intended to be used,
(2)a expanding said tube by internal pressure, ⁵ (2)b applying to the outer circumference of said tube while inflated a layer of plastic sealing compound,	(2)a expanding said tube by internal pressure, ⁵ (2)b applying to the outer circumference of said tube while inflated a layer of plastic sealing compound (protective textile fabric) ,
(3) covering the said compound with a layer of vulcanizable rubber which extends beyond the edges of the compound and contacts with the endless tube for adhesion thereto,	(3) covering the said compound (fabric) with a layer of vulcanizable rubber which extends beyond the edges of the compound (fabric) and contacts with the endless tube for adhesion thereto,
(4) and curing the entire tube structure in a mold whose cavity is substantially equal to the size and shape of the cavity of the tire casing in which said tube is intended to be used.	(4) and curing the entire tube structure in a mold whose cavity is substantially equal to the size and shape of the cavity of the tire casing in which said tube is intended to be used.
³ to the point where it is fully expanded but under substantially no tension. In other words, it is inflated to about the size it will have when it is placed in use (R. 355, col. 1, lines 21-25).	⁴ Wallace discloses "a partially cured ordinary inner tube" (R. 400, col. 1, line 13). In the contemporaneous art "Standard (ordinary) tubes * * * are only about two-thirds the size of the tire casings inside" (R. 418, col. 1, lines 29-32).
	⁵ with only a relatively light pressure, to give it the desired size and to constitute it a suitable working or building surface (R. 400, col. 1, lines 30-33).

with the process claim in suit, the elements or portions of elements in bold face represent features claimed by the patent in the prior art patents, which the Waber disclosure or process claim in suit has eliminated.

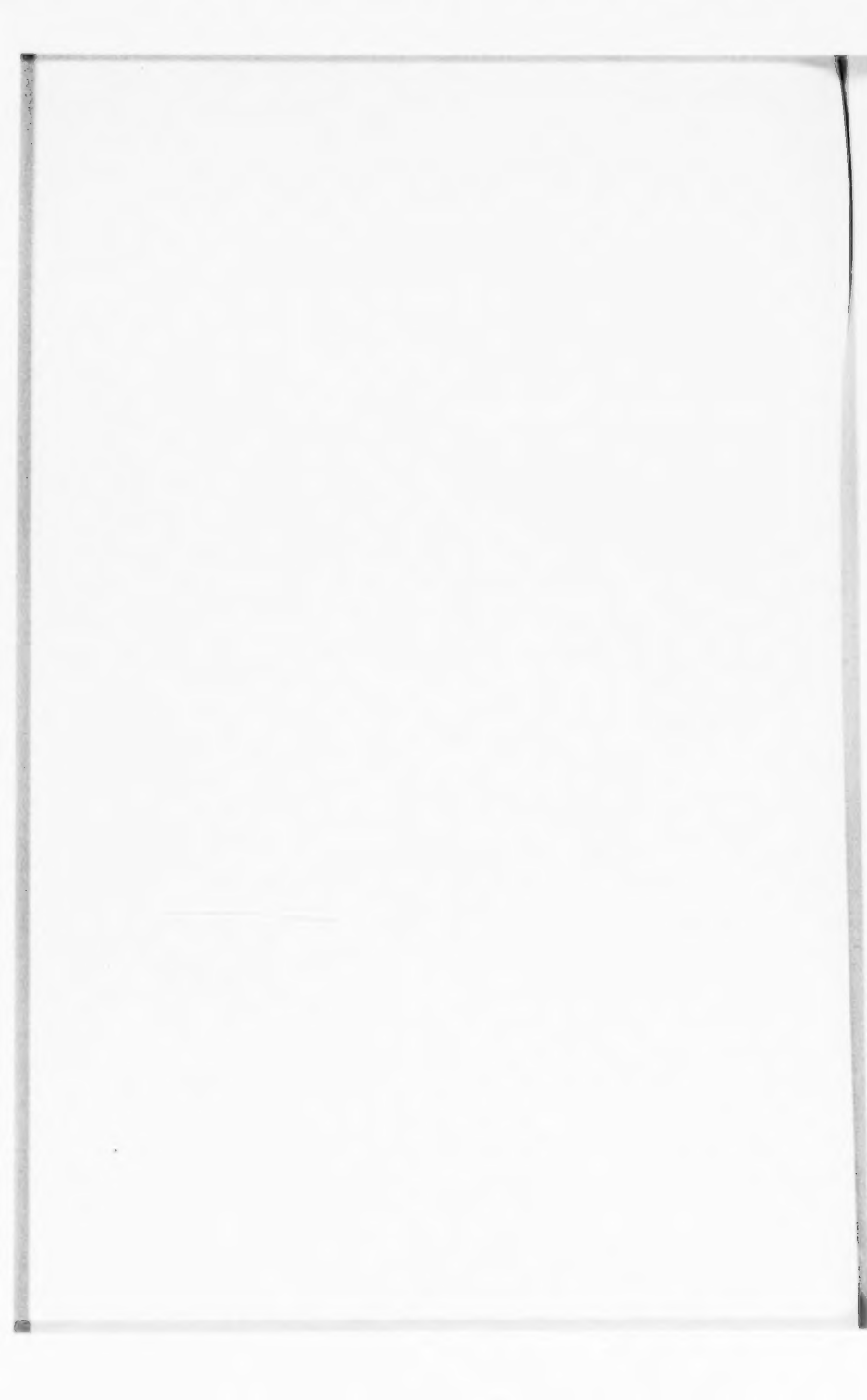
APPENDIX A

CROMBIE PATENT No. 1,350,17 (R. 412) DISCLOSURE	WILDMAN PATENT No. 1,601,013 (R. 428) (First Method) DISCLOSURE	WILDMAN PATENT No. 1,601,013 (R. 428) (First Method) DISCLOSURE	WILDMAN PATENT No. 1,601,013 (R. 428) (Second Method) DISCLOSURE
The method of making an inner tube for pneumatic tires which consists in	The method of making an inner tube for pneumatic tires which consists in	The method of making an inner tube for pneumatic tires which consists in	The method of making an inner tube for pneumatic tires which consists in
(1) forming an endless tube of vulcanizable rubber whose dimensions are slightly smaller than the cavity in the tire casing in which said tube is intended to be used,	(1) forming an endless tube of vulcanizable rubber whose dimensions are slightly smaller than the cavity in the tire casing in which said tube is intended to be used (<i>on a straight mandrel</i>),	(1) forming an endless tube of vulcanizable rubber whose dimensions are slightly smaller than the cavity in the tire casing in which said tube is intended to be used (<i>on a straight mandrel</i>),	(1) forming an endless tube of vulcanizable rubber whose dimensions are slightly smaller than the cavity in the tire casing in which said tube is intended to be used (<i>on a straight mandrel</i>),
(2)a expanding said tube by internal pressure, (2)b applying to the outer circumference of said tube while inflated a layer of plastic sealing compound,	(2)a expanding said tube by internal pressure, (2)b applying to the outer circumference of said tube while inflated (<i>while on the mandrel</i>) a layer of plastic sealing compound,	(2)a expanding said tube by internal pressure, (2)b applying to the outer circumference of said tube while inflated (<i>while on the mandrel</i>) a layer of plastic sealing compound,	(2)a expanding said tube by internal pressure, (2)b applying to the outer circumference of said tube while inflated (<i>while on the mandrel</i>) a layer of plastic sealing compound,
(3) covering the said compound with a layer of vulcanizable rubber which extends beyond the edges of the compound and contacts with the endless tube for adhesion thereto,	(3) covering the said compound with a layer of vulcanizable rubber which extends beyond the edges of the compound and contacts with the endless tube for adhesion thereto,	(3) covering the said compound with a layer of vulcanizable rubber which extends beyond the edges of the compound and contacts with the endless tube for adhesion thereto,	(3) covering the said compound with a layer of vulcanizable rubber which extends beyond the edges of the compound and contacts with the endless tube for adhesion thereto,
(4) (<i>after which the whole is constructed to form a tube</i>) ^{6, 7}			(4) (<i>stripping said tube from the mandrel and joining the ends together by splicing and cementing steps</i>) ^{6, 8}
(5) and curing the entire tube structure in a mold whose cavity is substantially equal to the size and shape of the cavity of the tire casing in which said tube is intended to be used.	(4) and curing the entire tube structure in a mold whose cavity is substantially equal to the size and shape of the cavity of the tire casing in which said tube is intended to be used.	(4) and curing the entire tube structure in a mold whose cavity is substantially equal to the size and shape of the cavity of the tire casing in which said tube is intended to be used.	(5) and curing the entire tube structure in a mold whose cavity is substantially equal to the size and shape of the cavity of the tire casing in which said tube is intended to be used.
	(5) (<i>and stripping said tube from the mandrel and joining the ends together by splicing and cementing steps</i>) ^{6, 8}	(5) (<i>and stripping said tube from the mandrel and joining the ends together by splicing and cementing steps</i>) ^{6, 8}	
⁷ R. 413, lines 51-52.	⁸ R. 430, lines 51-53.	⁸ R. 430, lines 51-53.	⁸ R. 430, lines 51-53, also appendix B. ⁹ R. 430, lines 52-71, Opinion R. 469, also appendix B.

⁶The specifications of the patent in suit pertinently state: "In manufacturing puncture healing tubes I have heretofore attempted to build them on a mandrel or core and then splice the ends which has produced very unsatisfactory results due to the difficulty of making the splice" (R. 355, lines 45-49). "In the present method of manufacture these difficulties are entirely overcome and the puncture healing material and outer elastic cover are regularly and uniformly placed about the tube. Also the puncture healing material and outer elastic cover are regularly and uniformly placed about the tube. Also built up before the tube is vulcanized, a tube which is without splices, seams or appreciable overlaps is formed" (R. 355, lines 63-70).

nt in suit, but lacking in the prior art patents, while the elements or portions of elements in italics, and

ments or portions of elements in italics, and



APPENDIX B.

Excerpts from the file wrapper of Wildman Patent No. 1,601,013 (R. 428-430, Plaintiff's Exhibit 19).

The application as filed incorporated the following language between lines 23 and 24, R. 429, of the issued patent:

"Fig. 2 is a diagram of the tube as it appears in cross section preliminary to vulcanization. Figs. 3, 4, 5, 6 and 7 are separate reduced views of the five plies wrapped thereon and upon each other according to my present conception and practice. Fig. 9 is a side view of a segmental portion of the tube, partly in section, showing the mode of splicing the ends of the tube preliminary to vulcanization. Fig. 10 is a sectional view of a mold and an inflated tube therein prepared for vulcanization" (File wrapper, Plaintiff's Exhibit 19. The figures herein referred to appear at R. 305, 307.).

Instead of lines 14-16, R. 430, of the issued patent, the original application stated:

"In building up a tube from sheets and strips of rubber of the different compositions described I may use a round or ovate mandrel 6 and* begin by wrapping the thin sheet or ply of free stretching rubber 1 thereon until the opposite edge portions either abut or overlap as shown in Figs. 2 and 8. The length of this sheet may be approximately equal to the internal diameter of the tube to be produced.* (As a second step I may lay or superpose the thicker strip or ply 2 of rubber which is more resistive to stretch upon the tread side of wrapped ply 1. The width of strip 2 may be such that it will overlap the sides of the tube and mandrel more or less, and the length of the strip is slightly less than sheet or ply 1 to permit the ends thereof to be retired in respect to the ends of said first ply 1 when overlaid thereon as shown in Fig. 8.)* The next step consists in placing the relatively thick filler strip 3

*Step (1)

*Omitted
Step

*Step (2)

of raw non-vulcanizable rubber upon the layer strip 2, and the border faces or edges of strip 2 may be left exposed. The length of filler strip 3 may also be somewhat shorter than layer 2 to permit a stepped formation to be produced at the corresponding ends of the superposed strip.* (The next step involves the placing of a still shorter strip 4 of rubber which is strongly resistant to stretch upon raw rubber strip 3, and the width of strip 4 may be such as to completely enclose the raw rubber strip and overlap the exposed border portions of strip 2.)* Then a thin sheet or ply 5 of free stretching rubber is wrapped around the other plies as built up or assembled, and a double or overlapping fold may be made in this ply 5 which may extend around and completely envelop and intimately contact the lower half of the first ply 1 of free stretching rubber, thus making three thicknesses or plies of the same composition of rubber in this part of the tube. The length of outer ply 5 may be less than ply 4 to expose the ends of the latter, and permit an overlapping piece of rubber to envelop the same, which together with other pieces or parts, may be vulcanized in situ to effect an inseparable union of the opposite ends of the tube as will hereinafter more fully appear. In building up the tube of plies of different inherent characteristics and properties, it should be observed that there is a lesser percentage of crude rubber used in plies 2 and 4 than in the inner and outer plies 1 and 5.

*Omitted
Step

*Step (3)

*Step (4)

*The next proceeding involves the stripping of the built up tube from the mandrel and joining of the opposite ends together to form an endless tube. This may be accomplished by bringing the opposite ends of the inner ply 1 together and applying short sections or filler pieces 7, 8 and 9, respectively, of different lengths upon the exposed stepped portions of plies 1, 2 and 3, and wrapping them within an outer sheath 10 so that the joint or spliced portion of the tube will correspond in thickness and contour to the remainder of the tube. Moreover, the short filler pieces and outer

sheath are each of the same thickness and mixture of materials as the plies and strips of which they form a continuation, so that the completed tube will possess the same characteristics and properties throughout or in all cross sectional portions thereof.

The annular tube T composed wholly of rubber of the several compositions described, is also provided with a metal inflating valve, which is affixed to its inner circumference where an opening is formed to receive it.* Then the tube is placed within a sectional vulcanizing mold M of circular form with the inflating valve projected therefrom and accessible to permit attachment of a tubular air connection A, whereby the tube may be inflated and expanded by air pressure against the walls of the mold cavity. Vulcanization takes place by heat, usually steam, applied to the mold, for example, in the way commonly practiced with a tire vulcanizing press, while the tube is inflated and pressed against the walls of the mold cavity by an internal air pressure. In this proceeding, all the plies of rubber, except the raw unvulcanizable strip 3, will be properly vulcanized in approximately forty-five minutes with thirty pounds of steam. The self-sealing mixture" (File wrapper, Plaintiff's Exhibit 19, pages 5-7. The figures herein referred to appear at R. 305, 307).

*Step (5)

Instead of line 55, R. 430, of the patent as issued, the application stated:

"molding the tube in the way described herein. That is to say, the finished tube may be given the same true circular" (File wrapper, Plaintiff's Exhibit 19, page 8).

Note: The steps numbered (1) to (5) above are those steps which are set up under the same numbers below the graphically described "SECOND METHOD" OF WILDMAN, RIGHT HAND COLUMN, APPENDIX "A." The steps marked "omitted step" in parenthesis are those steps the omission of which the Circuit Court of Appeals said "WABER CANNOT ESCAPE ANTICIPATION" (R. 470).

APPENDIX C.

Remarks of Representative Jenckes (in charge of the passage in the House of the 1870 Codification of the Patent Laws), delivered April 21, 1870, reported in 93 Congressional Globe 2877-2879:

“Mr. Speaker, there are some general considerations upon the subject of the patent laws which I wish to present to the House before asking a vote upon the passage of this bill.

The Patent Office was constituted not only for the purpose of granting patents for meritorious inventions but for the protection of the public against spurious inventions—the unjust claims of speculators trading in inventions. Hence the employment of a corps of skilled examiners and the careful investigation of the merits of each particular application for a patent.

This constitution of the office has two results. It causes the rejection of the worthless and fraudulent claims, now about one out of four, five thousand out of twenty thousand in each year; and it also enhances the value of those that are allowed and granted, giving them weight as evidence in all courts and controversies.

Recognizing the value of inventions to the State, and the want of technical knowledge and of skill in the use of language on the part of inventors, our patent laws have provided for the most tender and careful consideration of the cases stated in the petitions of inventors. They are first referred and considered by a primary examiner in the class to which the invention belongs. If he rejects the claim for want of novelty he must give the references to prior inventions upon which his decision is based, and the applicant is entitled to a second hearing before this

examiner, and to make any modification of his claim that he thinks right and proper. If he is again rejected he may appeal from the decision of the examiners to the board of examiners-in-chief, officers selected for their legal and scientific knowledge, appointed by the President and confirmed by the Senate, and if their decision should be adverse he may again appeal to the Commissioner in person. There are in fact three appeals allowed within the Patent Office. But notwithstanding all these hearings, original and appellate, the adverse decision to the petition may still be wrong. If so, how shall it be revised? This has been one of the most serious questions presented to the committee. The present law allows a proceeding in the nature of an appeal from the adverse decision of the Commissioner to either of the judges of the supreme court of the District of Columbia. But the judge in such case does not act as a court; he is merely a supervisory commissioner *pro hac vice*, and if he reverses the decision of the Commissioner and allows the patent, his decision has no weight as a judicial authority, but the patent thus obtained has less weight in the courts than one granted by the office, as it has the judgment of the several scientific tribunals within the office against it, merely the opinion of an unskilled person, although a judge, in favor of it. This is a proceeding without analogy in any other Department of the Government, and is a wide departure from the principles upon which the Executive Departments and their bureaus were constituted, and the result has been to disturb and render inharmonious the decisions of that bureau, which of all others should be most consistent and symmetrical. On the other hand, if the claim as asked for is passed by the primary examiner there is no provision for a review of his decision within the office, and the public may be made to suffer from his ignorance or indolence

in allowing without proper scrutiny the most broad and comprehensive claims.

That there should be a supervision over the action of the office is conceded, and the real question is, when should that supervision cease to be executive merely and become judicial; when should the contested questions pass out of the executive power and come within the judicial power of the United States? Sooner or later they must all be reviewed and determined by the judicial power. The committee hold and have recommended that the action of the Commissioner should be the final action of the executive power and of the incidental *quasi* judicial powers included within the exercise of his discretionary power by the head of any Department, and shall be conclusive as to all matters within the executive power, and that if his decision is sought to be reviewed, it shall be by the courts charged with the exercise of the judicial power of the United States, and upon questions within that judicial power.

These are the reasons for the amendments recommended by the committee, enlarging, defining, and making clear the remedies in the courts. These amendments reject the so-called appeal from the Commissioner to a single judge, acting as commissioner *pro hac vice* in each case, and provide for proceedings in the courts of the United States, by which the final action of the Patent Office can be reviewed judicially and with effect.

Into this forum every contested case must come sooner or later, and it is for the interest of every litigant that the proceedings should be without unnecessary delay or expense, and be as complete and conclusive as they can be made. It may not strike the ear as a perfectly plain or self-evident proposition, but I can say from personal experience that it is nevertheless true that the remedies in equity in the courts of the United States, under the

rules established by the Supreme Court, are the most speedy, the least expensive, and the most satisfactory of any known to the law. It is within this jurisdiction that we recommend that all these controversies should be brought and determined. The questions that arise in these controversies are subtle, not easy to understand, and difficult of determination. They arise out of the exercise of those powers of the mind which have added and which are constantly adding to the development of the material prosperity of the human race.

Patent laws are based upon the belief that the field of the useful arts may be extended, and that many things which may add to the comfort, the well-being, and the prosperity of mankind yet remain to be discovered. These laws give to every one who thus by his inventive genius adds to the sum of human knowledge in either of the ways indicated, a protection for a few years to the exclusive use of his invention or discovery. They offer a premium upon the exercise of this talent for the benefit of mankind. They recognize a man's right to the fruit of his own mind, upon the condition that he shall teach the public how to use his invention without price forever after the termination of the period for which his use is exclusive. Property in ideas, and protection to that property for a limited period, is the vital principle of these laws. If he who can teach us how to make two blades of grass grow where but one grew before is a public benefactor, how much more so is he who constructs for us a machine or explains to us a chemical process by the use of which one man can bring about a greater and more perfect result than a hundred men could do before? This is the domain of invention, and so far as it is genuine the law follows it with its protection for seventeen years.

But why protect it at all, say many. If an invention had

not been perfected by this patentee today it would have been at some subsequent time by some other inventor. Why not wait and let it be produced in course of time, according to the necessities of the art in which it is developed, and without expense to the public? This objection touches precisely the point of the whole matter, and affords the best argument for the patent laws. It admits that invention is a question of time, and that the results of invention are desirable and valuable. The patent laws offer a premium upon the earliest time. If it be known that any art or manufacture could be improved by invention in any particular, the question is, is it likely that such improvement will be made sooner by protection of the inventor, or will it be delayed indefinitely without such protection? The solution of this question does not rest in speculation. The history of inventions determines it. The loom is as old as civilization, but the power-loom was perfected under the stimulus and protection of the patent laws. So was the machinery for spinning. The philosophy of steam may have been ancient, but the steam-engine is a creature of the patent laws.

These are but individual instances. They might be increased till the mind and memory would be burdened by the catalogue. The assurance that thought, skill, and inventive talent may gain fame, honor, and fortune, by an early solution of the problems in science and art that are pressing upon us, brings into the enjoyments of this age improvements and discoveries that might not have been known for centuries later. The theologians will not admit that any new developments or discoveries can be made in religion; the politicians have not advanced much in their arts beyond those we read about in ancient history; in the fine arts the greatest genius of the present day can hardly hope to excel "the old masters;" in architecture nothing has been produced within the last five hundred years to

surpass that which has been known, admired, and reproduced for twenty-five hundred.

The sphere, therefore, in which original genius and inventive talent can best obtain recognition, honor, and reward is that of science and the useful arts. Therein, under the protection and fostering care of laws like that which we now reproduce, has been the greatest progress of the world within the last century, and in many branches of these arts the progress has been greater within the memory of living men than in the entire previous historic period. As the desires and necessities of mankind are the same in all generations there must be some reason why this advancement is found in the nineteenth century instead of in the ninth, or the tenth, or in any of those centuries which are mere barren wastes in the history of civilization. Certainly one reason is because there is some incentive in this era for the development of improvements in this sphere. It cannot be found in the necessities and desires of the race alone, for those have been always the same; and those who have ministered to their wants and necessities, with the means known to previous generations, have been the most strenuous opponents of the introduction of these new inventions.

It is not true, as argued by one of the most illustrious of the opponents of the patent laws in our time, that manufacturers will welcome and adopt an invention which seems to be called for by the necessities of their particular manufactures. This has never been the case where the profits of capital and labor have been disturbed by a new invention which created a revolution in a particular art or manufacture. "It may seem a paradox," says a distinguished author discussing "the rights and wrongs of inventors," "but it is no less true, that inventors' patrons are among their most inveterate opponents." The inventor of the machine for making paper, Fourdrinier, was driven out of

France, and it took him ten years to introduce his machine into England in opposition to the methods of paper-making by hand. The inventor of the loom for weaving variegated patterns in fabrics, Jacquard, was in danger of his life from his collaborators in Lyons, and the capitalists and artisans, whose money and labor were dependent upon the use of the old looms for their profits, fought for years against the introduction of the revolutionary invention. The conflict is still recognized in our tariff laws. In our own country we know of the opposition to the steamboats, the locomotives, the mowing and reaping machines, the sewing-machines, the revolutionary inventions in the manufacture of carpets, paper, iron, and steel. In no case does the capitalist welcome an invention which requires him to reconstruct or lay aside the machinery used in the manufacture from which he derives a profit, nor is it looked upon with favor by the laborers, nine out of ten of whom it threatens to throw out of employ.

The necessities of any art or manufacture do not prompt invention. The conservative tendencies both of capital and labor array themselves against it. The inventor is more frequently than otherwise disconnected with the trade or manufacture to which his invention applies and from which he seeks his reward. But the necessities of the public, the consumers of the product of the art and manufacture, all the time demand improvement and increased cheapness. The premium to inventors by the limited protection of the patent laws is thus directly in the interest of the public. When it is said that an invention would have been made at some time if not at the time when it was made, without the stimulus of the patent laws, who can tell at what time? When would any modern invention that might be named, the sewing-machine, for instance, have been produced if the inventors had not expected a profit upon it?

What invention can be named which this generation would willingly have parted with and consented to have postponed till the next century by reason of the extravagant price we have paid for it under the patent laws, whose stimulus and protection have caused it to be made in our time? Would we, then, part with the cotton gin, the locomotive, the steamboat, the electric telegraph, the sewing-machine, the cast-iron plow, the reaper, the machines for gathering the hay crop, the planing machine, the improved steam-engine, the rotary printing press? I have mentioned only those inventions which are embodied in wood and metal. But for the small consideration which the inventors or those working the inventions have received would we have parted in our time with vulcanized rubber and its thousand uses; with illuminating gas; with all the arts of dyeing and printing, which have extracted from waste weeds and the refuse of the gas factories the colors which vie with the Tyrian purple; with the wonders of the lithographic and photographic arts; and with all those wonderful substances, with almost magic properties, which are the products of chemistry as applied to the arts? I challenge a reply from the most bigoted opponent of the patent laws.

These inventors have been questioning nature, and her kind responses have been a benefit to themselves as well as benefactions to mankind. But while the law has encouraged them, capital, from its conservative instincts, has always been opposed to them. Those who have invested their means in the machinery and apparatus which is well known and in common use in any particular branch of manufacture do not like to be confronted with an inventor who can demonstrate that he can produce the articles manufactured in a better and cheaper manner by a method which requires new investments of capital and makes the old apparatus comparatively worthless. The manufacturers of the old

musket did not welcome the inventors who brought them the breech-loader and the magazine rifle, requiring new tools for their construction and consigning the old to the scrap heap.

Invested capital would never encourage or adopt new and revolutionary inventions. It would be a benefit to all now engaged in manufactures if no new improvement was made in their machinery for twenty years, or until it was worn out. They would be saved the cost of making the changes required by the new invention. There is a historical anecdote which illustrates perfectly the relative position of the capitalist who believes that he has assured possession of the art in which his capital is invested and the inventor whose invention would render those investments of little value. It is a remarkable incident in the history of the lost arts, preserved in the curious gossip of Petronius:

“A certain skillful workman used to make crystal vases as strong as vases of gold and silver. He produced an incomparable masterpiece. It was a chalice of astonishing beauty, which he thought worthy of Caesar only, and which he felt a pride in offering to him. Tiberius highly praised the skill and the rich present of the artist. This man, wishing to increase still more the admiration of the prince, and secure his favors to a greater degree, begged of him to give back the vase. He then threw it with all his might on the marble pavement of the apartment; the hardest metal could never have resisted this terrible shock. Caesar appeared moved, and was silent. The artist, with a triumphant smile, picked up the vase, which had only a slight dent, and which by striking it with the hammer was soon brought to its original state. This being done, no doubt remained in his mind that he had conquered the good graces of the Emperor and the esteem of an astonished court. Tiberius asked him if he was the only one who knew how to work crystal in so remarkable a manner. The workman immediately answered that no one possessed the secret. ‘Very well,’

said Caesar, 'let his head be struck off without loss of time; for if this strange invention were known gold and silver would very soon have not the least value.'

"Thus did the Emperor Tiberius encourage artists and the arts."

And in the same way do our manufacturing capitalists encourage inventions and inventors. They unconsciously imitate Tiberius, and although they cannot, like Caesar, strike off the impertinent inventor's head, they too often have turned him off to starve. But under our patent laws, as they were established in 1836, the inventor, if he be prudent and thrifty, is assured of a certain compensation. Under the existing constitution of the Patent Office, its seal is evidence that its possessor is entitled *prima facie* to a new and useful invention. The number of persons skilled in the useful arts, and the business to which they appertain has largely increased. There are many skilled persons who can estimate with approximate correctness the value of every new invention. Under this American system of patents, in itself as great an invention as any that are protected by it, inventions have become commodities of marketable value. No inventor now needs to sacrifice his invention for subsistence. Some, perhaps, have anticipated the period of their greatest usefulness; but every genuine invention now has its value, a great portion of which can, with ordinary care and prudence, be realized by the inventor.

Without this protection we should return to the era of "secrets," when every valuable discovery was carefully guarded by its possessor, or parted with only upon terms which required the purchaser to be equally silent and uncommunicative. The public obtained no useful knowledge of the art and but a limited advantage from the working of the discovery. The evil consequences of that system

were twofold. The knowledge of many valuable inventions and discoveries died with their possessors and are now among the lost arts; on the other hand, empirical processes of fictitious value were imposed upon manufacturers under the guise of "secrets" in the arts, and the whole subject of invention and the character of inventors became discredited and debased. The injury to the progress of the useful arts by these pretended secrets has been greater a thousandfold than any that has arisen from the abuse of even the most imperfect system of patent laws.

Now every invention published through the Patent Office adds something to our knowledge, and, if useful, increases the material wealth of the world. And I do not hesitate to say that the sum of these values, the aggregate increase to the wealth of this country, from the inventive genius of the people fostered and protected by the patent laws, has been greater than that derived from all the protective tariffs passed since the Government was organized under the Constitution. A protective tariff deals only with the known elements of labor and skill; as with cottons produced in this country with the same machinery, labor, and skill as they are produced in England and France, and with iron as produced in Scotland or Wales. But invention takes a stride forward of the known mechanism and processes, and calls for a higher degree of skill. Who can estimate the effects of the invention of the cotton gin upon this country? Not its value in money merely, but its effects socially, morally, and politically? Consider the results from the leading inventions I have named, and see how small are the results from the manufacture of coarse cottons and pig iron when compared with the great interests these inventions have created in the country.

The most distinguished of the opponents of the patent laws has argued in favor "of putting an end to the notion

that every person who invented anything had a right to a patent," and that "the giving of patents was a matter of grace and favor in well-selected and discriminated cases, in the exercise of a discretion, by an authority intrusted with that discretion;" and in his superlative wisdom he expressed the opinion that "at the period of progress in the history of the arts and trade at which they had arrived they could do much better without these props. He called them props because they were meant to be so, but he believed that at present they were nothing but obstructions and hinderances to trade and the arts." This was said of the patent laws of Great Britain, where there is no preliminary examination and investigation into the rightfulness of the inventor's claim, but where any one can take a patent by paying the fees, if he claim to be either an inventor or the person who first introduced an invention into that country.

Our American system of patent law defies such narrow, carping, illiberal, and unjust criticism. It acknowledges and declares that the first and original inventor of anything new and useful has a vested right to its protection by a patent for a limited term, upon the compliance by the inventor with certain mild and prudent conditions. It provides for a discrimination which shall determine what the invention is, not as a matter of grace and favor, or in the exercise of an uncontrolled discretion, but as a matter of right as between the inventor and the public. It is not based upon the idea that invention has reached its highest flood, and must soon be subject to a returning ebb; or if the results of invention be likened to a structure, it does not consider that it is now complete and perfect, finished and furnished, and that the "props," which the patent laws were, may now be knocked away; nor does it consider that these laws are obstructions and hinderances to trade and the arts.

Under the beneficent provisions of these laws the results of the inventive genius of our people have developed, and are now being developed, in almost geometrical progression. Never at any time in the history of the world have so many and so valuable inventions been made known through the Patent Office. The inventors of all nations seek this country for the protection of its laws. Every invention thus acquired, as well as any now produced at home, is the planting of a new industry which needs no other protection from legislation, to grow and prosper than that which is afforded by these laws. The rise of this inventive genius is not like that of the tide which must reach its limit and recede, but like the increase and swelling of a river, which will not diminish while its course, which is that of time itself, shall continue.

There is nothing of which this nation may be more justly proud than its progress in the industrial and useful arts. No greater and more beneficial results to mankind have been attained in the whole history of the race than have been accomplished within the last three quarters of a century and in this country. If we look back over the whole history of invention we are surprised to see how meager and barren it is, compared with what has been achieved almost within our time. The country acknowledges always this great glory which its citizens have acquired. The nation takes pride in the record of the results of that inventive genius which is preserved in one of the grandest temples ever dedicated to art and science by any nation or in any age; and it knows that great as is its renown in arms, in the spread of liberty, and in the success of free government, there is no brighter coronal that adorns the Republic than that which is enwreathed from the contributions of its inventors to science and the useful arts."

